

WHAT IS CLAIMED IS:

1. A photodetector having a heterojunction structure in an intrinsic region, comprising:

5 a lower cladding layer including an n-type doped region;
 an absorbing layer;
 an upper cladding layer including a p-type doped region; and
 ohmic electrodes connected to said lower cladding layer and said
upper cladding layer, respectively

10 wherein said p-type doped region extends into said absorbing layer by
a predetermined length.

2. The photodetector as claimed in claim 1,

15 Wherein a distance between said n-type doped region and said p-type
doped region is 0.6 to 1.2 μm .

3. The photodetector as claimed in claim 1,

20 Wherein said absorbing layer has a structure that a quantum well
barrier and a quantum well layer are alternatively formed, and
 Said p-type doped region extends into some portion of said quantum
well barrier.

4. The photodetector as claimed in claim 1,

 wherein said the photodetector is one of a waveguide type PIN

structure photodetector, a travelling wave photodetector, or an avalanche photodetector.